

**ABSTRACT OF THE DISCLOSURE**

A microcontroller-based system to detect ground-fault and grounded-neutral conditions in a monitored circuit of an electrical distribution system having line and neutral conductors.

- 5 The system includes a single sensor producing an output signal responsive to current flow in both the line and neutral conductors of the monitored circuit, and a microcontroller receiving the sensor output signal and initiating the generation of a circuit status signal indicating one of a normal operating condition, a ground-fault condition or a grounded-neutral condition in the monitored circuit. The microcontroller is programmed to continuously test for ground-fault
- 10 conditions by evaluating the sensor output signal and, at selected intervals, test for grounded-neutral conditions by evaluating the sensor's output signal response to a microcontroller initiated ping in the sensor circuit.